Implicit Association of Gender and Leadership in Healthcare

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Intro/Background

This study is aimed at examining the perception of women in leadership positions in medicine. As women now make up the majority of the work force in the medical field, this is quickly becoming a topic of discussion amongst many communities. However, we continuously find that in executive and leadership roles there is a large imbalance. Women in these leadership roles can be considered to be the minority in at many institutions, where men make up 62 percent of full time faculty and women only 38 percent. This percentage difference only becomes wider as the potential roles become more advanced and the top echelons of medicine are reached. Only 24 percent of senior executives, 18 percent of hospital CEOs, and 14 percent of boards of directors are women. There is a common knowledge of these imbalances within the medical field. However current actions and policies recommendations are severely lacking. The potential barriers to women's advancement to higher leadership professions are numerous.

To date, similar studies have been performed on the general population. However, no such studies have been completed with medical students. The current study attempts to gain knowledge on the existing biases regarding gender and leadership to indicate knowledge gaps, in order to inform future action.

Study Objectives

To this end, the study has 2 aims, to gather information about: (a) The implicit association and beliefs of medical students about gender and leadership; (b) medical student reaction to their implicit associations.

Methods and Analysis

This was a prospective study that went through the University of South Florida IRB approval. All medical students at the Morsani College of Medicine received an email where they had access to the survey (table 1). The study was piloted by Morsani College of Medicine medical students, who were excluded from the results. There were 26 males and 45 females who completed the study with an average age of 26.3 for Males and 25.7 for Females. Ethnicity, field of interest, household demographics, and highest level of education of mother and father were collected (table 1). The gender-leadership implicit association test (IAT) questions were from a previous study in the literature by Dasgupta N., Asgari S, 2004 (table 1). A Fisher's exact, Mann-Whitney U, and Kruskal-Wallis Tests were used to analyze the data.

Results

To this end, the study has 2 aims, to gather information about: (a) The implicit association and beliefs of medical students about gender and leadership; (b) medical student reaction to their implicit associations.

Table1: Study Questionnaire

1. Age
2. Gender
   - I. Male
   - II. Female
3. Race/ethnicity: check all that apply
   - I. American Indian or Native American
   - II. Asian/Pacific Islander
   - III. Black or African American
   - IV. Hispanic or Latino
   - V. White/Caucasian,
   - VI. Other
4. Field of interest
   - I. Anesthesiology
   - II. Emergency Medicine
   - III. Family Medicine
   - IV. Internal Medicine
   - V. Neurology
   - VI. Pediatrics
   - VII. Psychiatry
   - VIII. OB/GYN
   - IX. Surgery
   - X. Other
5. Household Demographic. Check all that apply
   - I. Mother and father living together
   - II. mother and father living separately
   - III. single mother
   - IV. single father
   - V. step-mother
   - VI. step-father
   - VII. female sibling
   - VIII. male sibling
   - IX. other female relative
   - X. other male relative
6. What is the highest level of school mother completed or the highest degree they received?
   - I. No schooling
   - II. Some high school, no diploma
   - III. High school graduate, diploma or equivalent (for example: GED)
   - IV. Some college credit, no degree
   - V. Trade/technical/vocational training
   - VI. Associate degree
   - VII. Bachelor's degree
   - VIII. Master's degree
   - IX. Professional degree
   - X. Doctorate degree
7. What is the highest level of school father completed or the highest degree they received?
   - I. No schooling
   - II. Some high school, no diploma
   - III. High school graduate, diploma or equivalent (for example: GED)
   - IV. Some college credit, no degree
   - V. Trade/technical/vocational training
   - VI. Associate degree
   - VII. Bachelor's degree
   - VIII. Master's degree
   - IX. Professional degree
   - X. Doctorate degree
8. How strongly do you associate leadership with males and females?
   - I. Strongly male
   - II. Moderately male
   - III. Slightly male
   - IV. Neither male or female
   - V. Slightly female
   - VI. Moderately female
   - VII. Strongly female
9. How personally important is attaining a leadership position to you?
   - I. Extremely important
   - II. Very important
   - III. Somewhat important
   - IV. Slightly important
   - V. Neither important nor unimportant
10. Please go to the following web page to take the Gender-Leadership Implicit Association Test and write your results in the same format bellow http://misteli.engr.wisc.edu/leaderiat.php
11. Do you think that there is any bias on promoting individuals to leadership positions based on gender implicit associations? Please explain.
12. Where you surprised about your IAT results? Why or why not.
13. What do you think the results would be in the general population? For Physicians? Please explain.

IAT Test Instructions:
One will be asked to keep ones index fingers on the 'e' and 'i' keys to enable rapid response. Two labels, male or female and leader or supporter, will be at the top corners of the page. A word from the list above will appear in the middle of the page, one will type either 'e' or 'i' to try and classify the word under the correct label. Each word has a correct classification shown. There are 5 blocks in the IAT. One will be presented with a set of words to classify into groups. The first and fourth blocks are gender-names associations. Male and female will appear in opposite top corners and male and female names bellow will randomly appear in the center. The second is leader or supporter terms supporter and leader will appear in opposite top corners and supporter and leader terms bellow will randomly appear in the center. The third and fifth are gender-terms combined. Male and female will appear in opposite corners and will be paired with supporter or leader. Gender names and supporter and leader terms bellow will randomly appear in the center. The task requires one to classify items as quickly as you can while making as few mistakes as possible. Going too slow or making too many mistakes will result in an uninterruptable score. The following is a list of category labels and the items that belong to each of those categories.

Category	Items
Leader	LEADER, AMBITIOUS, DETERMINED, DYNAMIC, ASSERTIVE
Supporter	SUPPORTER, HELPFUL, UNDERSTANDING, SYMPATHETIC, COMPASSIONATE
Male	JOSH, BRANDON, PETER, IAN, ANDREW
Female	EMILY, DONNA, DEBBIE, KATHERINE, JANE

Chart 1: Gender: 3-point IAT Results (Mann-Whitney U Test p=0.018)

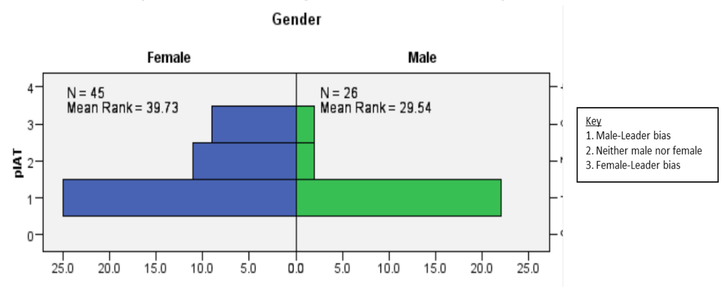

Chart 2: 3-point IAT Results (Kruskal-Wallis Test p=0.020)

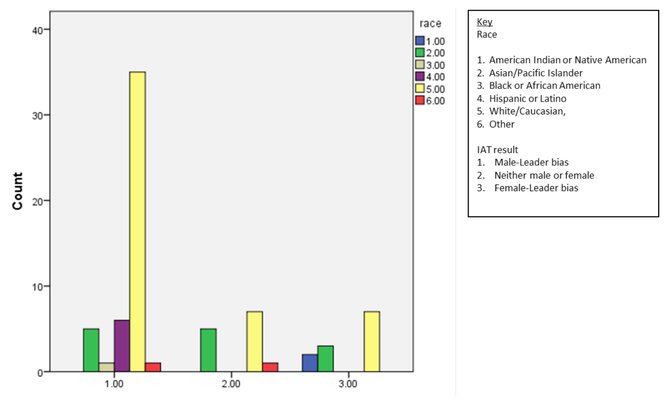

Table 2

Do You Think There is any Bias on Promoting Individuals to Leadership Positions Based on Gender?

		Child-bearing/ Family	Lifestyle	Inherited/ Ingrained Bias	Personality Traits	Women Do Not Advocate for Themselves	Cultural/ Tradition	Tendency Towards Own Sex	No Explanation	P value Compared to Gender Fisher's Exact Test
Yes	Female	15.9%	9.1%	0%	22.7%	2.27%	25%	0%	22.7%	**0.016**
	Male	6.66%	0%	20%	20%	0%	23.3%	3.33%	13.3	
No	Female	0%	0%	0%	0%	0%	0%	0%	4.55%	1.00
	Male	0%	0%	3.33%	3.33%	0%	0%	0%	6.66	

Table 2. Do you think there is any bias on promoting individuals to leadership positions based on gender? Percentage of times each gender mentioned topic. Female N=44, Male N=30 (N= number of times topic mentioned).

Table 3

What Do You Think the Results Would be in General Population? For Physicians? Please Explain

	General Population Stronger Male Bias than Physicians			Both General Population and Physicians Male Bias				Younger Population More Neutral	Differs for Females in Leadership Positions	More Education, Less Bias	Neutral	P value Compared to Gender Fisher's Exact Test
	Overall	More Females in Medicine Today	Exposure	Overall	Media	Culture/ Exposure	Females Introduced to Workforce Later					
Female	14.5%	5.79%	2.90%	44.9%	1.45%	18.8%	4.35%	5.79%	1.45%	0%	0%	**0.038**
Male	5.55%	0%	0%	66.7%	0%	13.9%	2.78%	5.55%	0%	2.78%	2.78%	

Table 3. What do you think the results would be in general population? for Physicians? Percentage of times each gender mentioned topic. Female N=69, Male=36 (N= number of times topic mentioned).

Conclusion

Male medical students, on average, hold substantially stronger explicit and implicit leaders-are-male stereotypes than do female students. Male and female students also held differing perspectives to why there is bias in promoting individuals to leadership positions and generalizability of the gender-leader bias to the general population and physicians. This could be influenced by environmental inputs. This survey will provide a useful tool for measuring the explicit and implicit association of gender and leadership and can track changes over time. In addition, the survey can be used to raise awareness about implicit associations. The ultimate goal is to facilitate a positive culture to promote more women in leadership positions.